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Specification for dial gauges for linear measurement

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Contents

Foreword *ii*

1	Scope	1
2	Terms and definitions	1
3	General features of design	2
4	Dial	3
5	Pointer	4
6	Revolution counter	4
7	Plunger	5
8	Contact point	5
9	Performance	5
10	Packing	7
11	Marking	7

Annexes

Annex A (informative)	Recommended dimensions for dial gauges	8
Annex B (informative)	Notes on methods of testing dial gauges	9
Annex C (informative)	Notes on the care and use of dial gauges	12

Bibliography **14**

List of figures

Figure 1	– Nomenclature of dial gauges	2
Figure 2	– 0.01 mm, 0.000 1 in or 0.001 in dial	3
Figure 3	– 0.000 5 in dial	3
Figure 4	– Free position of pointer	4
Figure A.1	– Dial gauge dimensions	8
Figure B.1	– Calibration curve of a dial gauge illustrating periodic error	11

List of tables

Table 1	– Discrimination capability	6
Table 2	– Limits of error for dials with scale divisions of 0.001 in and 0.000 5 in	6
Table 3	– Limits of error for dials with scale divisions of 0.000 1 in	7
Table 4	– Limits of error for dials with scale divisions of 0.01 mm	7
Table B.1	– Error of reading of dial gauge given in units of 0.000 1 in	10

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 14, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI and came into effect on 30 November 2008. It was prepared by Technical Committee TDW/4, *Technical product realization*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 907:1965, which is withdrawn.

Relationship with other documents

BS EN ISO 463 specifies the most important design and metrological characteristics of mechanical dial gauges.

Information about this document

This new edition has been fully revised to bring it up to date.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard specifies requirements for dial gauges with the plunger movement parallel to the plane of the dial.

The standard is applicable to gauges having dial diameters from 47.6 mm or $1\frac{7}{8}$ in to 63.5 mm or $2\frac{1}{2}$ in, as measured from the outside of the scale marks, and scale divisions of 0.01 mm, 0.001 in (sometimes sub-divided into half divisions of 0.000 5 in, in which case they are commonly designated "0.000 5 in gauges") or 0.000 1 in.

NOTE 1 Attention is drawn to the fact that the metric dimensions are not necessarily direct conversions of the imperial dimensions.

NOTE 2 Recommended dimensions for dial gauges are given in Annex A (Figure A.1) and notes on methods of testing and on the care and use of dial gauges are given in Annex B and Annex C respectively.

2 Terms and definitions

For the purposes of this British Standard the following terms and definitions apply.

NOTE The components of a dial gauge are illustrated in Figure 1, which also gives the nomenclature.

2.1 minimum scale value

smallest value of the measured quantity which the scale is graduated to indicate

2.2 scale division

part of a scale delimited by two adjacent scale marks

2.3 discrimination

sensitiveness of an instrument, the smallest change in the quantity measured which produces a perceptible movement of the pointer

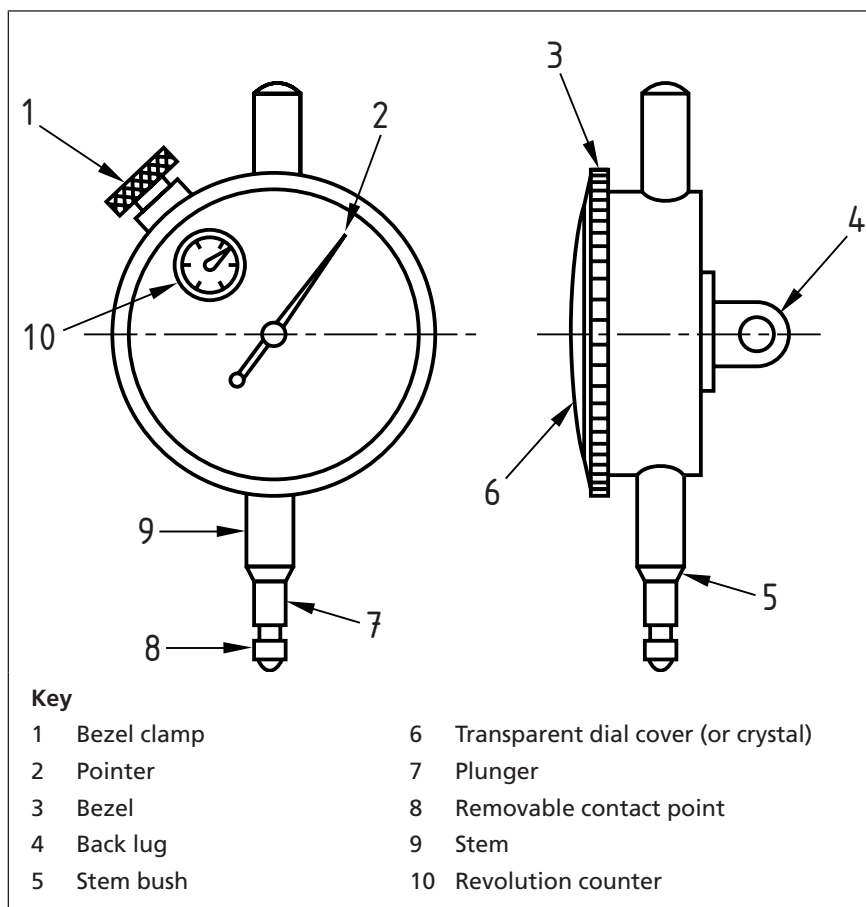
2.4 repeatability

reproducibility of the readings of an instrument when a series of tests is carried out in a short interval of time under fixed conditions of use

2.5 limit of error

positive and/or negative value of error which is not to be exceeded under test

Figure 1 Nomenclature of dial gauges



3 General features of design

The mechanism shall incorporate some means to eliminate backlash.

The design and rigidity of the case shall be such that the freedom of movement of the mechanism is not impaired by the tightening of the screws used for attaching the back or by the clamping of the stem of the instrument, provided that such clamping is carried out in an appropriate manner.

NOTE 1 See Annex C for recommendations on the care and use of dial gauges.

The transparent dial cover (or crystal) shall be of durable material which will retain its transparency without undue discolouration. Both the transparent dial cover and the case shall be dust proof.

The gauge shall be provided with a satisfactory means of setting to zero.

NOTE 2 If this is achieved by rotation of the bezel then a clamping screw may or may not be provided, but care should be taken to ensure that the setting is maintained on those which have no means of locking.

Back lug fixings shall be square or parallel to the measuring axis of the instrument within 0.150 mm per 25 mm or 0.006 in per inch in the design position.

NOTE 3 Back lug fixings may be integral with the gauge or may be removable.